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"The amount of error, which is about the $\frac{1}{3747}$ part of the side of the square, may be thus shown:—

Let the radius $=1$. Then $xy=(1+\cos 30°)(1-\cos 30°)=\frac{1}{4}$.
The line A E $=x$.
„ E F $=y$.
„ A F $=x+y$.

$$x^2=1+\cos^2 30°+\cos 30°=1+\tfrac{3}{4}+\frac{\sqrt{3}}{2}=\frac{7+2\sqrt{3}}{4}.$$

$$\therefore x=\tfrac{1}{2}\sqrt{7+2\sqrt{3}}=1{\cdot}6174131827, \text{ \&c.}$$

$$y=\frac{1}{4x}=\frac{1}{2\sqrt{7+2\sqrt{3}}}={\cdot}1545678016, \text{ \&c.}$$

$$x+y=\tfrac{1}{2}\left\{\sqrt{7+2\sqrt{3}}+\frac{1}{\sqrt{7+2\sqrt{3}}}\right\}=\tfrac{1}{2}\frac{8+2\sqrt{3}}{\sqrt{7+2\sqrt{3}}}=$$

$$=\frac{4+\sqrt{3}}{\sqrt{7+2\sqrt{3}}}=1{\cdot}7719809844, \text{ \&c.}$$

But when the diameter is 2, the area is 3·141592653, &c., and the square root is . . . . 1·77245385, &c.

which is the side of a square equal to the area of the circle.

According to the diagram, the line A F is the side of a square, by calculation found to be . . . 1·77198098, &c.

The difference between the sides of the squares is . ·00047287, &c.

So that the side determined by this simple geometrical construction differs in defect from the truth by only $\frac{1}{3747}$ of itself."

This approximation was thought worthy of notice by the Royal Society, and was communicated to that learned body by Professor Stokes. It seems to us that, from its simplicity and proximate accuracy, it must be of considerable use in practical mechanics and engineering. Altogether, the book comprises a vast amount of useful information, and a very ample index affords the means of getting at it with great readiness.

Theory of Compound Interest and Annuities, with Logarithmic Tables. By FEDOR THOMAN, of the Société Crédit Mobilier of Paris. London: Lockwood & Co.; 1859.

THIS little work, apparently written in our language originally by a foreigner, is edited anonymously by an Englishman, as it would seem. It contains, in a compact form and very neat type, the information usually found in works on the subject, and has some original tables for finding the values of annuities when the interest and annuity are not paid within the same intervals of time. The author is evidently well acquainted with the theory of his subject, and from his position has had ample means of studying it practically. He has dedicated his book to the Prince de Joinville.